

PTO/SB/106 (8-96)  
Approved for use through 9/30/98. OMB 0651-0032  
Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

## Declaration and Power of Attorney For Patent Application

### 特許出願宣言書及び委任状

### Japanese Language Declaration

### 日本語宣言書

下記の氏名の発明者として、私は以下の通り宣言します。

As a below named inventor, I hereby declare that:

私の住所、私番号、国籍は下記の私の氏名の後に記載された通りです。

My residence, post office address and citizenship are as stated next to my name.

下記の名前の発明に関して請求範囲に記載され、特許出願している発明内容について、私が最初かつ唯一の発明者（下記の氏名が一つの場合）もしくは最初かつ共同発明者であると（下記の名称が複数の場合）信じています。

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

NETWORK SYSTEM WITH DYNAMIC SERVICE

PROFILE UPDATING FUNCTIONS

上記発明の明細書（下記の欄でx印がついていない場合は、本書に添付）は、

the specification of which is attached hereto unless the following box is checked:

☐ 月 日に提出され、米国出願番号または特許協定条約  
国際出願番号を \_\_\_\_\_ とし、  
(該当する場合) \_\_\_\_\_ に訂正されました。

☐ was filed on \_\_\_\_\_  
as United States Application Number or  
PCT International Application Number  
\_\_\_\_\_ and was amended on  
\_\_\_\_\_ (if applicable).

私は、特許請求範囲を含む上記訂正後の明細書を検討し、内容を理解していることをここに表明します。

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

私は、連邦規則法典第37編第1条56項に定義されるとおり、特許資格の有無について重要な情報を開示する義務があることを認めます。

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

## Japanese Language Declaration (日本語宣言書)

私は、米国法典第35編119条(a)-(d)項又は365条(b)項に基づき下記の、米国外の国の少なくとも一カ国を指定している特許協力条約365(a)項に基づき国際出願、又は外国での特許出願もしくは発明者証の出願についての外国優先権をここに主張するとともに、優先権を主張している。本出願の前に出願された特許または発明者証の外国出願を以下に、枠内をマークすることで、示しています。

### Prior Foreign Application(s)

外国での先行出願  
2000-022278

(Number)  
(番号)

Japan

(Country)  
(国名)

31/01/00

(Day/Month/Year Filed)  
(出願年月日)

### Priority Not Claimed

優先権主張なし

☐

(Number)  
(番号)

(Country)  
(国名)

(Day/Month/Year Filed)  
(出願年月日)

☐

私は、第35編米国法典119条(e)項に基づいて下記の米国外特許出願規定に記載された権利をここに主張いたします。

(Application No.)  
(出願番号)

(Filing Date)  
(出願日)

(Application No.)  
(出願番号)

(Filing Date)  
(出願日)

私は、下記の米国法典第35編120条に基づいて下記の米国外特許出願に記載された権利、又は米国を指定している特許協力条約365条(c)項に基づき権利をここに主張します。また、本出願の各請求範囲の内容が米国法典第35編112条第1項又は特許協力条約で規定された方法で先行する米国外特許出願に開示されていない限り、その先行米国外出願提出日以降で本出願書の日本国内または特許協力条約国際提出日までの期間中に入手された、連邦規則法典第37編1.56項で定義された特許資格の有無に関する重要な情報について開示義務があることを認識しています。

(Application No.)  
(出願番号)

(Filing Date)  
(出願日)

(Status: Patented, Pending, Abandoned)  
(現況: 特許許可済、係属中、放棄済)

(Application No.)  
(出願番号)

(Filing Date)  
(出願日)

(Status: Patented, Pending, Abandoned)  
(現況: 特許許可済、係属中、放棄済)

私は、私自身の知識に基づいて本宣言書中で私が行なう表明が真実であり、かつ私の入手した情報と私の信じることに基づく表明が全て真実であると信じていること、さらに故意になされた虚偽の表明及びそれと同等の行為は米国法典第18編第1001条に基づき、罰金または拘禁、もしくはその両方により処罰されること、そしてそのような故意による虚偽の表明を行なえば、出願した、又は既に許可された特許の有効性が失われることを認識し、よってここに上記のごとく宣誓を致します。

I hereby claim foreign priority under Title 35, United States Code, Section 119 (a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below.

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s), or 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code Section 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of application.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

# Japanese Language Declaration (日本語宣言書)

委任状: 私は下記の発明者として、本出願に関する一切の手続きを米特許商標局に対して遂行する弁護士または代理人として、下記の者を指名いたします。(弁護士、または代理人の氏名及び登録番号を明記のこと)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith (list name and registration number)

書類送付先

Aaron B. KARAS, Reg. No. 18,923; Samson HELFGOTT, Reg. No. 23,072 and Leonard COOPER Reg. No. 27,625  
Send Correspondence to:  
HELFGOTT & KARAS, P.C.  
Empire State Building, 60th Floor  
New York, New York 10118  
United States of America

直接電話連絡先: (名前及び電話番号)

Direct Telephone Calls to: (name and telephone number)  
Helfgott & Karas, P.C.  
(212) 643-5000

第一または第一発明者名

Full name of sole or first inventor  
Yoichiro IGARASHI

発明者の署名

日付

Inventor's signature *Yoichiro Igarashi* Date Dec. 26, 2000

住所

Residence  
Kawasaki, Japan

国籍

Citizenship  
Japanese

私書箱

Post Office Address c/o FUJITSU LIMITED, 1-1,

Kamikodanaka 4-chome, Nakahara-ku,  
Kawasaki 211-8588 Japan

第二共同発明者

Full name of second joint inventor, if any  
Shinya YAMAMURA

第二共同発明者

日付

Second inventor's signature *Shinya Yamamura* Date Dec. 26, 2000

住所

Residence  
Fukuoka, Japan

国籍

Citizenship  
Japanese

私書箱

Post Office Address c/o FUJITSU NISHI-NIHON  
COMMUNICATION SYSTEMS LIMITED, 2-1,

Momochihama 2-chome, Sawara-ku, Fukuoka-shi,  
Fukuoka 814-8588 Japan

(第三以降の共同発明者についても同様に記載し、署名をすること)

(Supply similar information and signature for third and subsequent joint inventors.)

第三共同発明者		Full name of third joint inventor, if any Mitsuaki KAKEMIZU
第三共同発明者	日付	Third inventor's signature      Date <i>Mitsuaki Kakemizu</i> Dec. 26, 2000
住 所		Residence Kawasaki, Japan
国 籍		Citizenship Japanese
私書箱		Post Office Address/o FUJITSU LIMITED, 1-1, Kamikodanaka 4-chome, Nakahara-ku, Kawasaki 211-8588, Japan

第四共同発明者		Full name of fourth joint inventor, if any Kazunori MURATA
第四共同発明者	日付	Fourth inventor's signature      Date <i>Kazunori Murata</i> Dec. 26, 2000
住 所		Residence Fukuoka, Japan
国 籍		Citizenship Japanese
私書箱		Post Office Address/o FUJITSU NISHI-NIHON COMMUNICATION SYSTEMS LIMITED, 2-1, Momochihama 2-chome, Sawara-ku, Fukuoka-shi, Fukuoka 814-8588 Japan

第五共同発明者		Full name of fifth joint inventor, if any Masaaki WAKAMOTO
第五共同発明者	日付	Fifth inventor's signature      Date <i>Masaaki Wakamoto</i> Dec. 26, 2000
住 所		Residence Kawasaki, Japan
国 籍		Citizenship Japanese
私書箱		Post Office Address/o FUJITSU LIMITED, 1-1, Kamikodanaka 4-chome, Nakahara-ku, Kawasaki 211-8588, Japan

第六共同発明者		Full name of sixth joint inventor, if any
第六共同発明者	日付	Sixth inventor's signature      Date
住 所		Residence
国 籍		Citizenship
私書箱		Post Office Address

(第七以降の共同発明者についても同様に  
記載し、署名をすること)

(Supply similar information and signature for  
seventh and subsequent joint inventors.)

**THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re the Application of: Yoichiro IGARASHI et al.

Filed : Concurrently herewith

For : NETWORK SYSTEM WITH DYNAMIC.....

Serial No. : Concurrently herewith

January 12, 2001

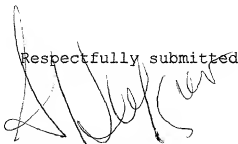
Assistant Commissioner of Patents  
Washington, D.C. 20231

**SUB-POWER OF ATTORNEY**

S I R:

I, Samson Helfgott, Reg. No. 23,0723 attorney of record  
herein, do hereby grant a sub-power of attorney to Linda S.  
Chan, Reg. No. 42,400, Harris A. Wolin, Reg. No. 39,432, Brian  
S. Myers, Reg. No. 46,947 and Michael Markowitz, Reg. No. 30,659  
to act and sign in my behalf in the above-referenced  
application.

Respectfully submitted,



Samson Helfgott  
Reg.No 23,072

HELFGOTT & KARAS, P.C.  
60th FLOOR  
EMPIRE STATE BUILDING  
NEW YORK, NY 10118  
DOCKET NO.:FUJR18.213  
BHU:power

Filed Via Express Mail  
Rec. No.:EL522394294US  
On: January 12, 2001  
By: Brendy Lynn Belony  
Any fee due as a result of this paper,  
not covered by an enclosed check may be  
charged on Deposit Acct. No. 08-1634..

00350183.011201

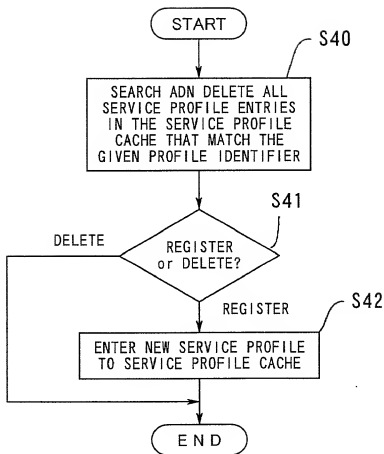


FIG. 24

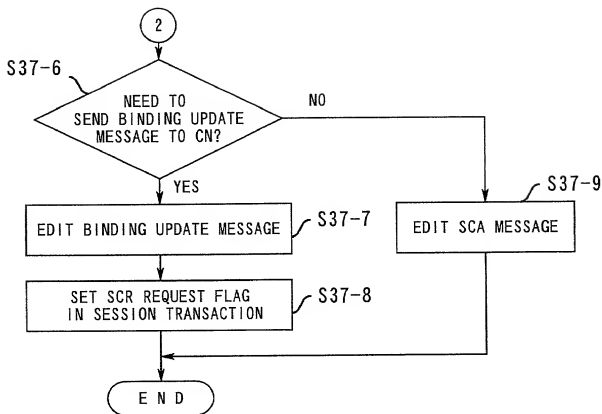


FIG. 23

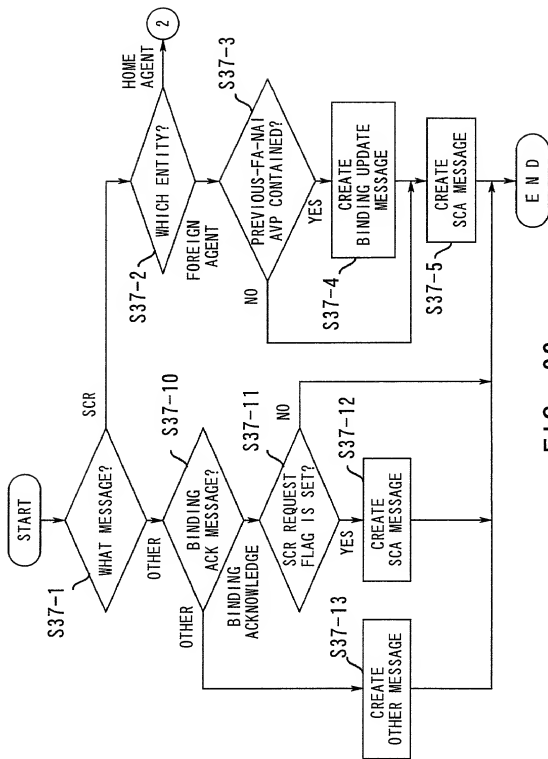


FIG. 22



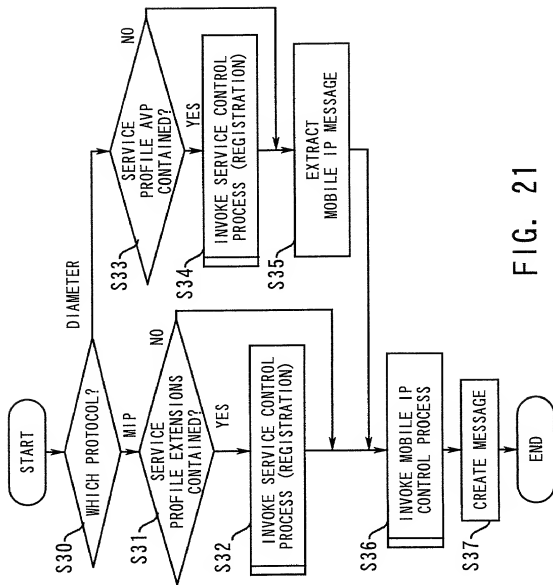


FIG. 21

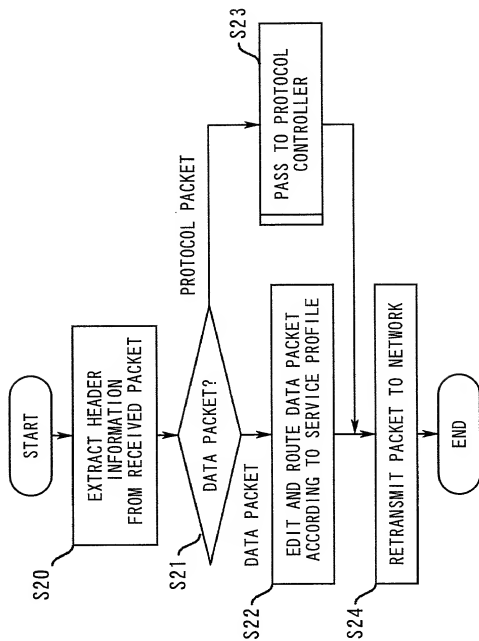


FIG. 20

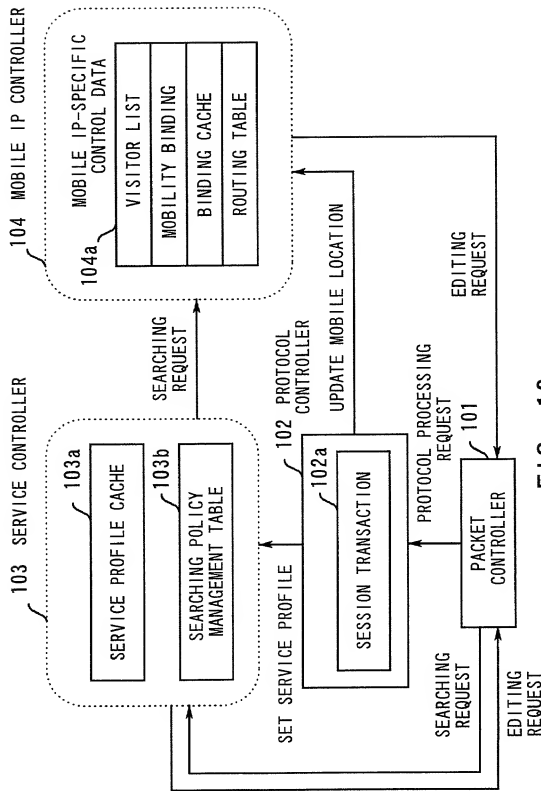


FIG. 19

Control Parameters	Description
Charge	System warns the user when the amount of service charges has exceeded a limit predefined by the user, prompting him/her to decide whether to continue the service.
Time	<p>User may choose a more affordable service which is available only in low-traffic hours.</p> <p>User may choose variable-class service which provides different levels of service depending on the time of day.</p>
Service Class	User may choose variable-class service which provides different levels of service depending on the type of applications, or type of packets, to minimize the usage-based charge.
Roaming Option	<p>User may enable roaming option with additional cost.</p> <p>User may cut the cost by disabling roaming option.</p>

FIG. 18

532

Item	Description
Flat-rate Accounting (Fixed charge for limited hours, plus additional charge for excess hours)	(Service Class-dependent Basic Charge) + (Service Class-dependent Hourly Rate) * (Excess Hours)
Usage-based Accounting (Proportional to the amount of packets transferred)	Summation of [ (Service Class-dependent Rate) * (Total Amount of Packets Transferred to/from Edge Node (Foreign Agent))]

FIG. 17

531

Service Class	Description
Class A	Maximum transmission delay is guaranteed to be within a prescribed tolerance
Class B	In Diffserv, high priority queuing is applied as long as it does not affect Class A traffic. May be divided into several subclasses, depending on Diffserv types
Class C	Best-effort service. Lower priority queuing than Class B.

FIG. 16

Item	Description
User NAI	User's Network Access Identifier (NAI)
User Profile	User name, Address, Phone No. etc.
User Authentication Data	Mobile Node-AAA Authentication Key, SPI, User ID, Password
Service Level Agreement (SLA)	Service agreement with customer
Service-specific Profile	Diffserve, Packet Filtering, ANYCAST, Multi Cast, etc

FIG. 15

521

Item	Description
Home Address	Home address assigned to mobile node
Care-of Address of Mobile Node	IP address of foreign agent to which mobile node is currently attached
Correspondent Node with Route Optimization	IP address of correspondent node to which route optimization is being applied
Registration Request Identifier	Identifier used to associate between request and response
Lifetime	Valid Period of Registration Request
Authentication Data	Authentication data used by foreign agent to authenticate requesting mobile node

FIG. 14



Item	Description
IP Source Address (Home Address )	Home address assigned to mobile node. Notified by registration request or AMA message
Link Layer Source Address of Mobile Node	Link layer (MAC) address of mobile node
UDP Source Port	UDP Source port of mobile node
Home Agent Address	Address of home agent. Provided in registration request or AMA message
Registration Request Identifier	Identifier used to associate between request and response
Lifetime	Valid period of registration request
Authentication Data	Authentication data used by foreign agent to authenticate requesting mobile node

FIG. 13

Item	Description
Session ID	<NAI of Mobile Node><32-bit Value><Optional Value>
Session Timer	Remaining lifetime of this transaction
Mobility Binding	Pointer to mobility binding
SCR Request Flag	Flag indicating that service profile is being updated in correspondent node
SCR Requester Address	IP address of the entity requesting SCR

FIG. 12

513

Item	Description
Session ID	<NAI of Mobile Node><32-bit Value><Optional Value>
Home Agent Address	IP address of home agent allocated by AAAH
HA-managing AAAF Address	IP address of AAAF that is allowed by AAAH to allocate home agent
Current AAAF Address	IP address of AAAF requesting AMR
Previous AAAF Address	IP address of previously used AAAF
Address Proxy Address	IP address of address proxy in ANYCAST service
Security Information	Authentication data for validate association between this AAAH and other entities (HA, AAAF)
Session Timer	Remaining lifetime of this transaction
Address Proxy Server Address	IP address of address proxy server
Foreign Agent Service Profile	See FIG. 3
Home Agent Service Profile	See FIG. 3
Current State	Waiting, HA Requested, AMA in Process, HA Change Requested, FA Change Requested

FIG. 11

Item	Description
Session ID	<NAI of Mobile Node><32-bit Value><Optional Value>
AAAH Address	IP address of AAAH identified by mobile node NAI
Home Agent Address	IP address of home agent allocated by AAAF
Previous Foreign Agent NAI	NAI of previous foreign agent to which the mobile node was attached
Current Foreign Agent NAI	NAI of foreign agent to which the mobile node is currently attached
SCR Requester Address	IP address of AAAH that is requesting SCR
Security Information	Authentication data for validate association between this AAAF and other entities (FA, AAAH, HA allocated by AAAH)
Session Timer	Remaining lifetime of this transaction
Foreign Agent Service Profile	See FIG. 3
Home Agent Service Profile	See FIG. 3
Current State	Waiting, HA requested, AMA in process, HA Change Requested, FA Change Requested

FIG. 10

Item	Description
Session ID	<NAI of Mobile Node><32-bit Value><Optional Value>
Session Timer	Remaining lifetime of this transaction

FIG. 9

Search Order	Cache Class	Cache Search Result	Individual Control Data Search Result	Next Action
1	ASPCsrc	Hit	Hit	Normal end
		No Hit	No Hit	Abnormal end
2	NSPCsrc	Hit	Hit	Search NSPCsrc
		No Hit	No Hit	Normal end
3	ASPCdst	Hit	Hit	Search NDSPsrc
		No Hit	No Hit	Search ASPCdst
4	NSPCdst	Hit	Hit	Normal end
		No Hit	No Hit	Abnormal end
5	NDSP	Hit	Hit	Search NSPCdst
		No Hit	No Hit	Normal end
		Hit	Hit	Search NDSPdst
		No Hit	No Hit	Use NDSP
		Hit	Hit	Normal end
		No Hit	No Hit	Abnormal end

FIG. 8

Service Profile Cache		Description
SPC	Source SPC (NSPCsrc)	A collection of service profiles to be used mainly for user-independent, common services. Indexed by source address information of data packets. Created by a mobility agent at the time of initial set-up, based on static information stored in hard drives and other storage devices of network equipment.
	Source Default SP (NDSPsrc)	Service profile applied when there is a hit in NSPCsrc, but no hit in individual control tables.
	Destination SPC (NSPCdst)	A collection of service profiles to be used mainly for user-independent, common services. Indexed by destination address information of data packets. Created by a mobility agent at the time of initial set-up, based on static information stored in hard drives and other storage devices of network equipment.
	Destination Default SP (NDSPdst)	Service profile applied when there is a hit in NSPCdst, but no hit in individual control tables.
	Default SP (NDSP)	Default service profile used when no hit is found. For retrieval of a network device-specific control table (routing table).
	AAA Communication (ASPC)	A collection of user-specific service profiles. Indexed by source address information of data packets that are sent from AAA systems when a mobile node logs in to the network.
		A collection of user-specific service profiles. Indexed by destination address information of data packets that are sent from AAA systems when a mobile node logs in to the network.

FIG. 7

Data Items	Detailed Data Items	Description
10-1 Profile Identifier	Session Identifier	Indicate session type
	Profile Number	Uniquely assigned to each session
	Source Address	Packet filtering rules
	Source Port No.	
10-2 Packet Extraction Parameters	Destination Address	
	Destination Port No.	
	Encapsulation (Encryption) Method	How to encapsulate packets to be routed
10-3 Routine/ Packet Editing Parameters	Routing Address (Multiple Entries Allowed)	IP address of the next node
	Type of Service (TOS)	TOS field value to be set to IP header
	Decapsulation Command	Request for decapsulation
		Designate which control table to search
10-4 Individual Control Data	Service Control Type	<ul style="list-style-type: none"> <li>- service profile cache</li> <li>- binding cache</li> <li>- MIP home (mobility binding)</li> <li>- MIP foreign (visitor list)</li> <li>- ANYCAST (extended visitor list)</li> <li>- routing table</li> </ul>
		Pointer to an intended part of the table

FIG. 6



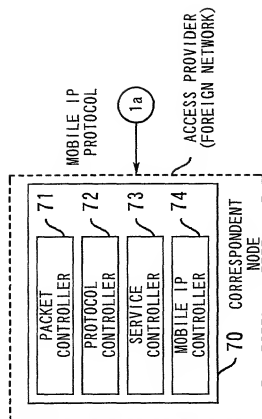
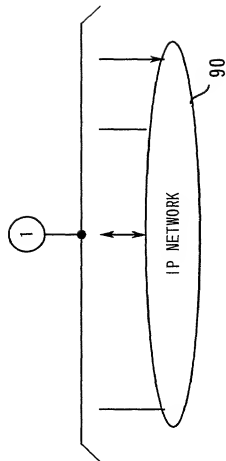


FIG. 5

FIG. 4

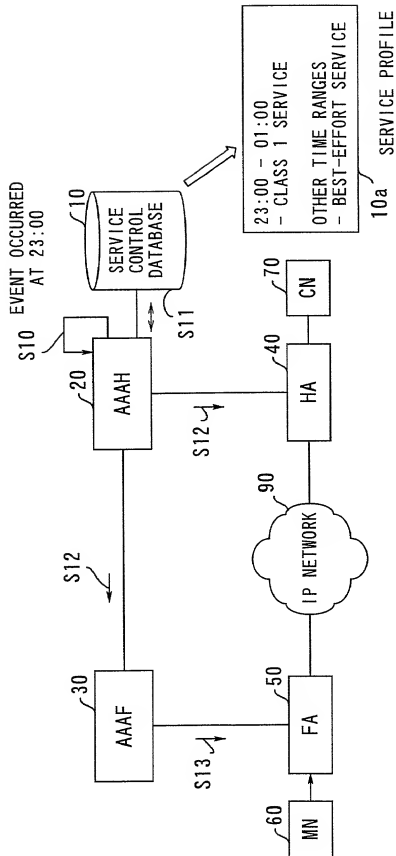


FIG. 3

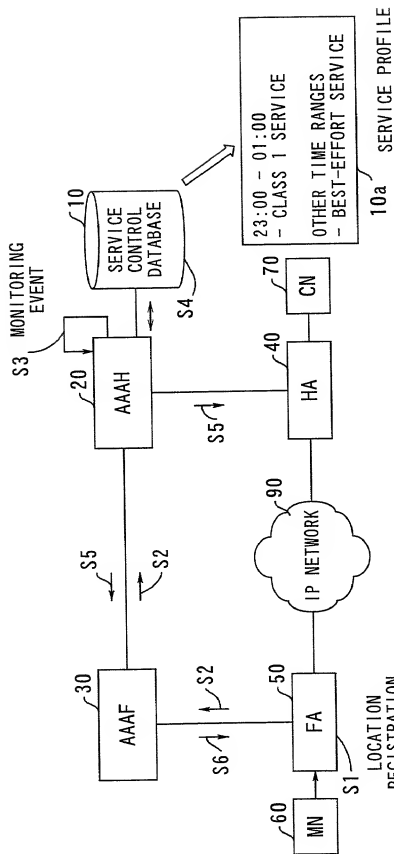
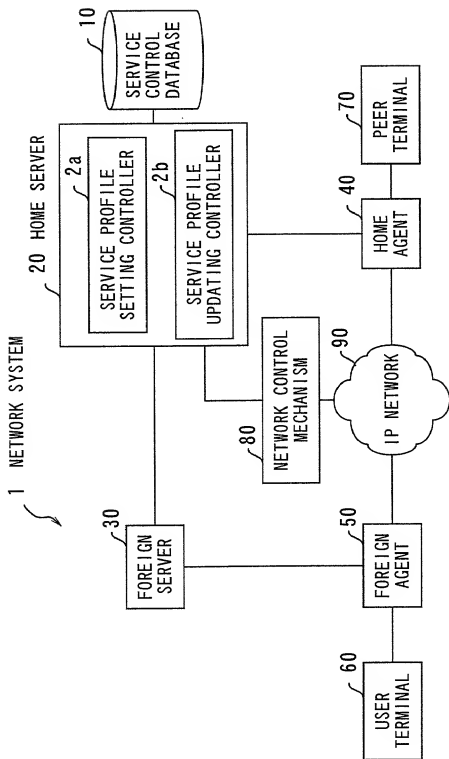


FIG. 2



**FIG. 1**

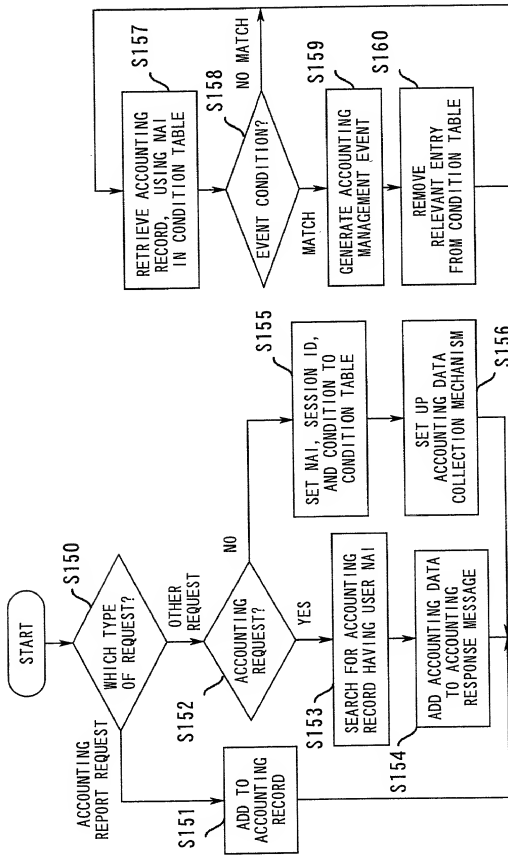


FIG. 41(B)

FIG. 41(A)

Message Received	Action to be Invoked	Criteria	Destination	Message to send
AMR	Create session transaction	w/o Home-Agent-Address AVP	Current AAAF	AMA
		with Home-Agent-Address AVP	Home Agent	HAR
		(Mobile node has roamed into different AAAF domain) and (Home agent has been allocated by previous AAAF)	Previous AAAF	AMR
AMA	Forward AMA message		Current AAAF	AMA
HAA	Set Home Agent address to session transaction		Current AAAF	AMA
SCA	Forward SCA message	in "HA Change Requested" state	Current AAAF	SCR
SFR	Forward SFR message, and terminate session transaction	w/o Home Agent allocation	Requesting entity	SFA
		with Home Agent allocation	Home Agent	SFR
SFA	Terminate session transaction	in "HA Release Requested" state	Current AAAF	SFR

FIG. 42

701

NAI	Session ID	Condition
userA@domain1	<userA@domain1><10.11.22.33><19991029013445>	if \$100 $\geq$
userB@domain1	<userB@domain1><10.11.22.33><19991029003445>	if \$150 $\geq$
:	:	:
userZ@domain1	<userZ@domain1><10.12.23.4><19991029091000>	if \$50 $\geq$

FIG. 43



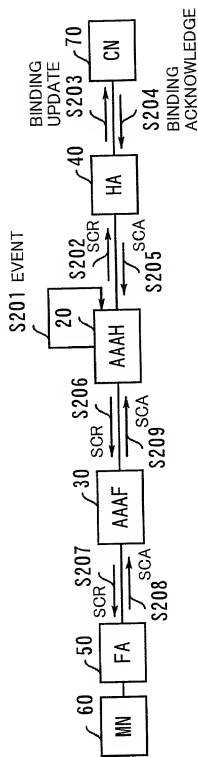


FIG. 44

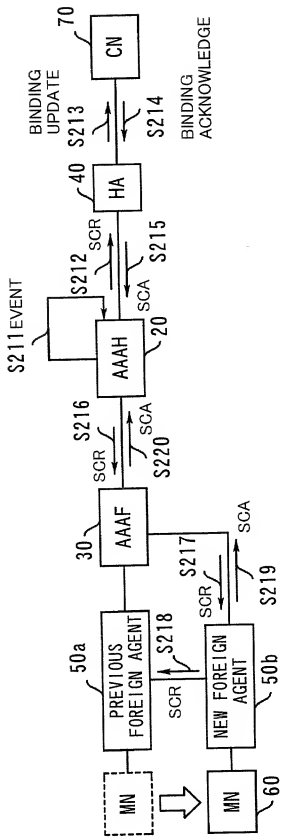


FIG. 45

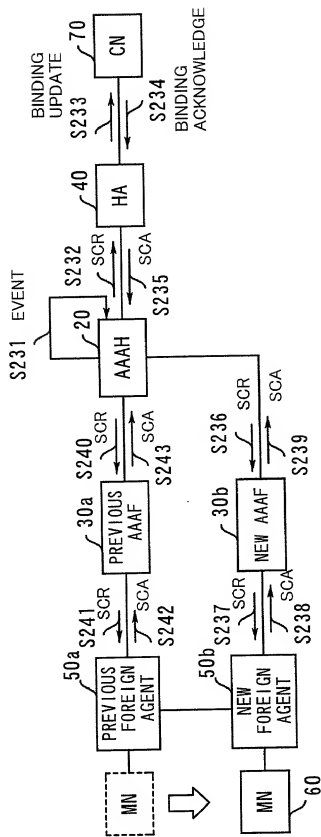


FIG. 46

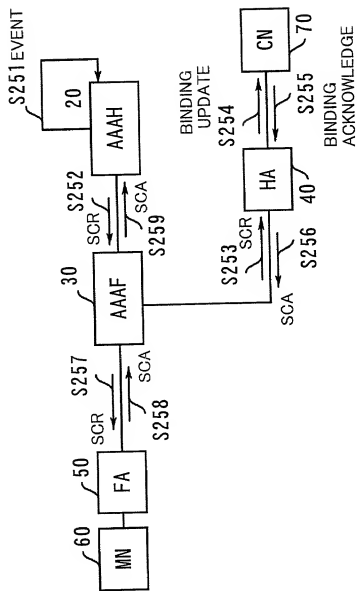


FIG. 47



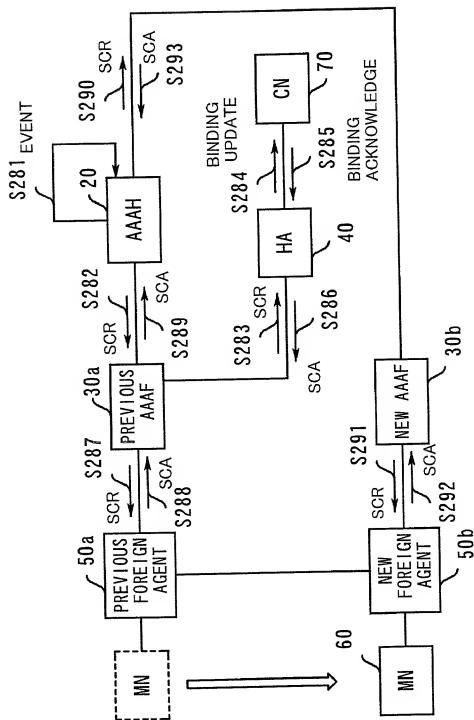


FIG. 49

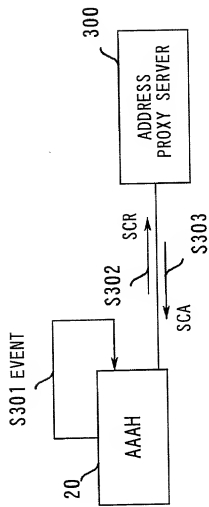


FIG. 50

Service Type		Diffserv
Additional Information 1	Diffserv Activation Policy	*
	Service Class	Class C
	Direction	Upstream
	IP Address	*
	Port No.	*
Additional Information 2	Diffserv Activation Policy	Time : 23:00 to 08:00
	Service Class	Class B
	Direction	Downstream
	IP Address	*
	Port No.	*
Additional Information 3	Diffserv Activation Policy	Time : 08:00 to 23:00
	Service Class	Class C
	Direction	Downstream
	IP Address	*
	Port No.	*

FIG. 51



Service Type		Diffserv
Additional Parameters 1	Diffserv Activation Policy	*
	Service Class	Class C
	Direction	Upstream
	IP Address	*
	Port No.	*
Additional Parameters 2	Diffserv Activation Policy	*
	Service Class	Class B
	Direction	Downstream
	IP Address	*
	Port No.	*
Additional Parameters 3	Diffserv Activation Policy	Amount of Charges $\geq \$100$
	Service Class	Class C
	Direction	Downstream
	IP Address	*
	Port No.	*

FIG. 52

Additional Parameters	Service Type		Packet Filtering
	Filter Activation Policy		
	IP Address		
	XXX.XXX.*.*		
	Port No.		
			*

FIG. 53

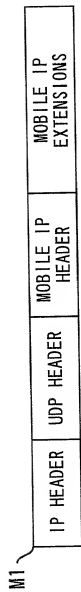


FIG. 54

M2

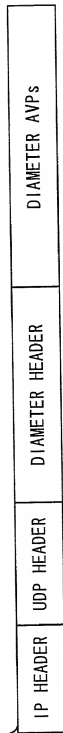


FIG. 55

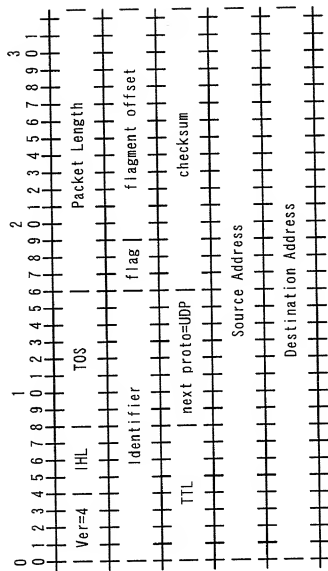


FIG. 56